S.No: 44	Exp. Name: ***Write a C program to find Sum of array elements by allocating memory using malloc() function***	Date:2023-01-15

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Aim:

Write a program to find the `sum` of n elements by allocating memory by using **malloc()** function.

At the time of execution, the program should print the message on the console as:

```
Enter n value :
```

For example, if the user gives the **input** as:

```
Enter n value : 4
```

Next, the program should print the message on the console as:

```
Enter 4 values :
```

For example, if the user gives the **input** as:

```
Enter 4 values : 1 5 4 2
```

then the program should **print** the result as:

```
The sum of given array elements : 12
```

Note: Write the functions **allocateMemory()**, **read()** and **sum()** in `UsingMalloc.c`.

Source Code:

SumOfArray1.c

```
#include <stdio.h>
#include <stdlib.h>
#include "UsingMalloc.c"
void main() {
   int *p, n, i;
   printf("Enter n value : ");
   scanf("%d", &n);
   p = allocateMemory(n);
   printf("Enter %d values : ", n);
   read(p, n);
   printf("The sum of given array elements : %d\n", sum(p, n));
}
```

UsingMalloc.c

```
int* allocateMemory(int n);
void read(int *,int);
int sum(int *,int);
int* allocateMemory(int n)
{
   int *p;
   p=(int *)malloc(n*sizeof(int));
   return p;
}
```

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```
void read(int *p,int n)
{
   int i,x;
   for(i=0;i<n;++i)
   {
      scanf("%d",p);
      p++;
   }
}
int sum(int *p,int n)
{
   int i,sum=0;
   for(i=0;i<n;++i)
   sum=sum+p[i];
   return sum;
}
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
Enter n value : 4
Enter 4 values : 1 4 5 2
The sum of given array elements : 12

Test Case - 2
User Output
Enter n value : 3
Enter 3 values : 10 20 30
The sum of given array elements : 60

Test Case - 3
User Output
Enter n value : 4
Enter 4 values : -5 -6 -4 -2
The sum of given array elements : -17

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